

WHITEMAN ESTATE, LOWER POND SPILLWAY

HAER NO. DE-41

Approx. 0.5 mile south intersection of DE 72 and Ebenezer Church Rd.  
Newark  
New Castle County  
Delaware

HAER  
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2-NEWCA,  
48 -

PHOTOGRAPHS  
WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD  
National Park Service  
Northeast Region  
Philadelphia Support Office  
U.S. Custom House  
200 Chestnut Street  
Philadelphia, Pennsylvania 19106

HISTORIC AMERICAN ENGINEERING RECORD

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HAER NO. DE-41

Location: Approx. 0.5 mile south of  
intersection of DE 72  
and Ebenezer Church Rd.  
Newark  
New Castle County, Delaware

UTM: 18.438002.4398410  
Quad: Newark East, DE, 1:24,000

Date of Construction: circa 1940

Builder: Halleck DuPont (property owner)

Present Owner: Richard DuPont

Present Use: Spillway

Significance: The Lower Pond Spillway is a contributing element to the Whiteman Estate, a good example of the combination of Colonial and Colonial Revival styles which incorporates mid-twentieth-century landscape elements. The ponds and spillways contribute to the aesthetic character of the property as well as aid with the control of sediment erosion along Muddy Run.

Project Information: Current plans related to the adjacent late-twentieth-century subdivision propose to modify the spillway. To mitigate the adverse effect, the State Historic Preservation Office stipulated documentation of the structure.

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KCI Technologies, Inc.  
5001 Louise Drive, Suite 201  
Mechanicsburg, PA 17055

The Whiteman Estate Lower Pond Spillway is situated at the southernmost end of Lower Pond, which is an oblong, oval-shaped pond with a small oval-shaped forebay at its easternmost border. The spillway and Lower Pond stand on the grounds of the Whiteman Estate, which is located just north of the City of Newark in Mill Creek Hundred, New Castle County, Delaware. Lower Pond and its spillway are situated just to the east of Paper Mill Road, south of its intersection with Ebenezer Church Road and north of its intersection with Fox Den Road. The spillway and pond now stand near the northern end of Middle Run Crossing, a late twentieth-century subdivision of detached single-family houses.

The spillway itself consists of two sloping, mortared stone parapet walls terminated by stone wingwalls at their northernmost ends, a notched, concrete-topped, mortared stone dam, and a wide concrete basin or floor below the dam. The structure is designed so that excess water from Lower Pond flows over and through the notched portion of the concrete-topped dam to a wide concrete floor below. The water drops in a thin, flat sheet from a height of just over 6 feet and runs in a southeasterly direction after exiting Lower Pond. The water in Lower Pond above the spillway averages about 3 to 3.5 feet deep, while the water in the concrete basin below the spillway dam only measures about 2 inches deep. The entire structure measures just over 33 feet long by about 24 feet wide.

The parapet walls rise to a height of 2 feet 11 inches above the top of the dam, but only rise about 11 inches from ground level on either side. The parapet walls each measure about one-and-one-half feet thick and consist of uncoursed and roughly dressed fieldstone bedded in mortar and coated on much of their top surfaces and exterior elevations with an irregularly-applied layer of concrete. The parapet walls are flat-topped near the dam, but slope downward gently at their northernmost ends and more steeply at their southernmost ends. On their southernmost ends, each parapet wall slopes downward about 7 feet 10 inches to terminate in a wall that rises only 1 foot 4 inches from the spillway floor. The much shorter wingwalls also incline downward. A rounded concrete mound protrudes from the west (interior) elevation of the east parapet wall and stands about 1.5 feet tall. The purpose of this mound is not entirely clear, although it may function as some sort of energy dissipator or sediment control device.

The dam portion of the spillway, which rises 6 feet 4 inches above the concrete floor, is built of roughly dressed and uncoursed stone bedded in mortar and capped with a thick layer of poured concrete. A 6-foot wide section in the center of the dam is 6 inches lower than the rest of the dam wall. This central notch or depression directs the water flow from Lower Pond only over the central

portion of the dam except when the water level in the pond is extremely high. Shallow recesses on either side of this central notch may relate to some sort of earlier gate or other similar arrangement for governing the water flow. The dam wall, like the parapet walls, shows evidence of repeated repointing, as several different mortar layers are apparent on the fieldstone section. A 4-inch pipe protrudes about 2 or 3 inches from the base of the dam at its very center, just above the height of the concrete floor.

The concrete floor of the spillway spans the entire space between both lower parapet walls. This concrete basin appears to extend southward at least to the ends of the parapet walls if not further.

To the east of the spillway, a grass-covered berm topped by a wire fence defines the southeastern bank of Lower Pond and divides the spillway and pond from the Middle Run Crossing subdivision. A mostly deciduous wooded area extends immediately to the south and west. Approximately 85 or 90 feet to the east is an oval-shaped forebay which is separated from the main body of Lower Pond by a roughly built rubble stone dam with a narrow opening in its center. The forebay was reconstructed in 1995 and is considerably smaller than Lower Pond, measuring roughly 40 by 60 feet. Its water level is only a few inches higher than that of the main pond. The main house of the Whiteman Estate is located far to the north of the spillway and pond, and a wooden footbridge is visible to the northwest. The eastern bank of Lower Pond slopes gently down to the water and is mostly open except for occasional stands of low grasses, some brush, and a few trees. The western bank slopes more steeply down to the water, and is largely wooded.

According to a 1987 publication issued by the U.S. Department of the Interior's Bureau of Reclamation dealing with the design of small dams, spillways are constructed primarily "to release water or floodwater that cannot be contained in the allotted storage space, and for diversion dams to bypass flows exceeding those turned into the diversion system." (Bureau of Reclamation, 339) Typically, the excess water in such an arrangement exits from the top of the reservoir and flows over and through the spillway back to its natural drainage channel. Most such structures are designed so that the surfaces that come into contact with the water flow are erosion resistant. These surfaces must withstand the constant pressure and scouring potential of the water as it drops from the reservoir surface to the tailwater level below. Often some sort of device designed to dissipate the energy of the water flow is employed at the bottom of the drop. Spillways are typically referred to as "controlled" or "uncontrolled" depending on whether they are gated or ungated. A free overfall, or straight drop, spillway is one in which the flow drops freely from the crest. An

overflow or ogee spillway has a control weir that is ogee or S-shaped in profile. (Bureau of Reclamation, 339) The Lower Pond Spillway appears to be designed as a semi-controlled overflow device, since the overflow is channeled to the center of the dam and occurs only when the water level in Lower Pond is higher than the center of the dam.

Lower Pond is one part of a chain of three ponds which were created along Middle Run in the 1940s. The ponds were constructed voluntarily by the property owner with the goal of controlling sediment erosion along Middle Run. The pond's spillway thus appears to be part of a larger series of landscape-related improvements to the property which include not only the spillway, but also this chain of ponds, another spillway at the end of the Upper Pond, and the nearby footbridge. Although the spillway incorporates general design characteristics and elements of an overflow device as described above, taken as a whole, the construction of the ponds their accompanying components (spillways, footbridge and overall landscaping), appears to have been designed primarily for ornament. (DESPHO correspondence files, Pulte Home Corporation/Whiteman Estate property: Tetra Tech, Inc. to National Park Service, 6 July, 1994).

The property is presently part of the DuPont family landholdings. In the nineteenth century, this property was associated with the Whiteman family. Beer's 1868 atlas indicates that the property was owned by I. Whiteman. The 1881 Hopkins map also shows that Is. Whiteman was the owner of this 127-acre property.

The eligible property includes the nineteenth-century stone house with its twentieth-century additions, a nineteenth-century springhouse, several twentieth-century outbuildings including a barn, kennels and stables, and the landscaped property (including both Upper and Lower Ponds) on which this complex stands. The fieldstone and concrete spillways are also contributing elements to this historic property. Buildings on the property include a two-story, five-bay gable-roofed stone house which stands to the north of the spillway and pond. According to a 1992 report on the historic resources of the White Clay Valley, the only other historic building on the property is a small stone springhouse. At the time of the report, several modern outbuildings also stood on the property, including a one-and-one-half-story garage attached to the gable of the main house, a frame barn, dog kennels, and stables. The I. Whiteman House was constructed circa 1820. The house was reworked in the 1930s, possibly by the Colonial Revival architect R. Brognard Okie. (New Castle County Department of Planning, 1992, A-19-20; DESHPO survey files, New Castle County: N-4023).

The property is significant as a typical example of the combination of Colonial and Colonial Revival architectural styles of the nineteenth and twentieth centuries. R. Brognard Okie, the notable Colonial Revival architect, was responsible for the twentieth-century renovations to the estate. This estate may also be significant for its orientation toward fox hunting, which became popular as an elite pastime in Delaware in the first half of the twentieth century. The Lower Pond Spillway is a contributing element to the Whiteman Estate and is significant for its contribution to the property's landscape and the overall appearance and feeling of the estate (DESPHO correspondence files: Pulte Home Corporation/Whiteman Estate property: DESPHO to Philadelphia District, Corps of Engineers, 15 June 1994).

Discussion with USDA Natural Resources Conservation staff in Newark revealed that a similar spillway located on the County Center Girl Scout Camp off Sharpless Road near Ashland, New Castle County was reviewed by a staff member of the Hagley Museum and Library in March 1994. According to this study, the pond and spillway structure were built during the first half of the twentieth century and appear to have been constructed for aesthetic purposes in order to create a pond and enhance the landscape of the property. The assessment of the Girl Scout property further stated that the structure was not designed or constructed by a professional engineer and that the structure did not include necessary features (such as dump gates) for effective sedimentation control (USDA, NRCS correspondence files: Hagley Museum and Library to Chesapeake Bay Girl Scout Council, Inc., 2 March 1994). Comparison of the Lower Pond Spillway with the Girl Scout Spillway indicates that the structure on the Whiteman Estate may share similar structural characteristics and may also function in a largely aesthetic manner.

Bibliography

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State of Delaware, Division of Historical and Cultural Affairs, Historic Preservation Office (DESHPO). Correspondence files: Pulte Home Corporation/Whiteman Estate property. Dover, Delaware, 1994.

\_\_\_\_\_. Survey files for New Castle County, N-4023. Dover, Delaware, 1978-1994.

Hopkins, G.M. and Co., *Map of New Castle County, Delaware*. Philadelphia, Pennsylvania: G.M. Hopkins and Co., 1881.

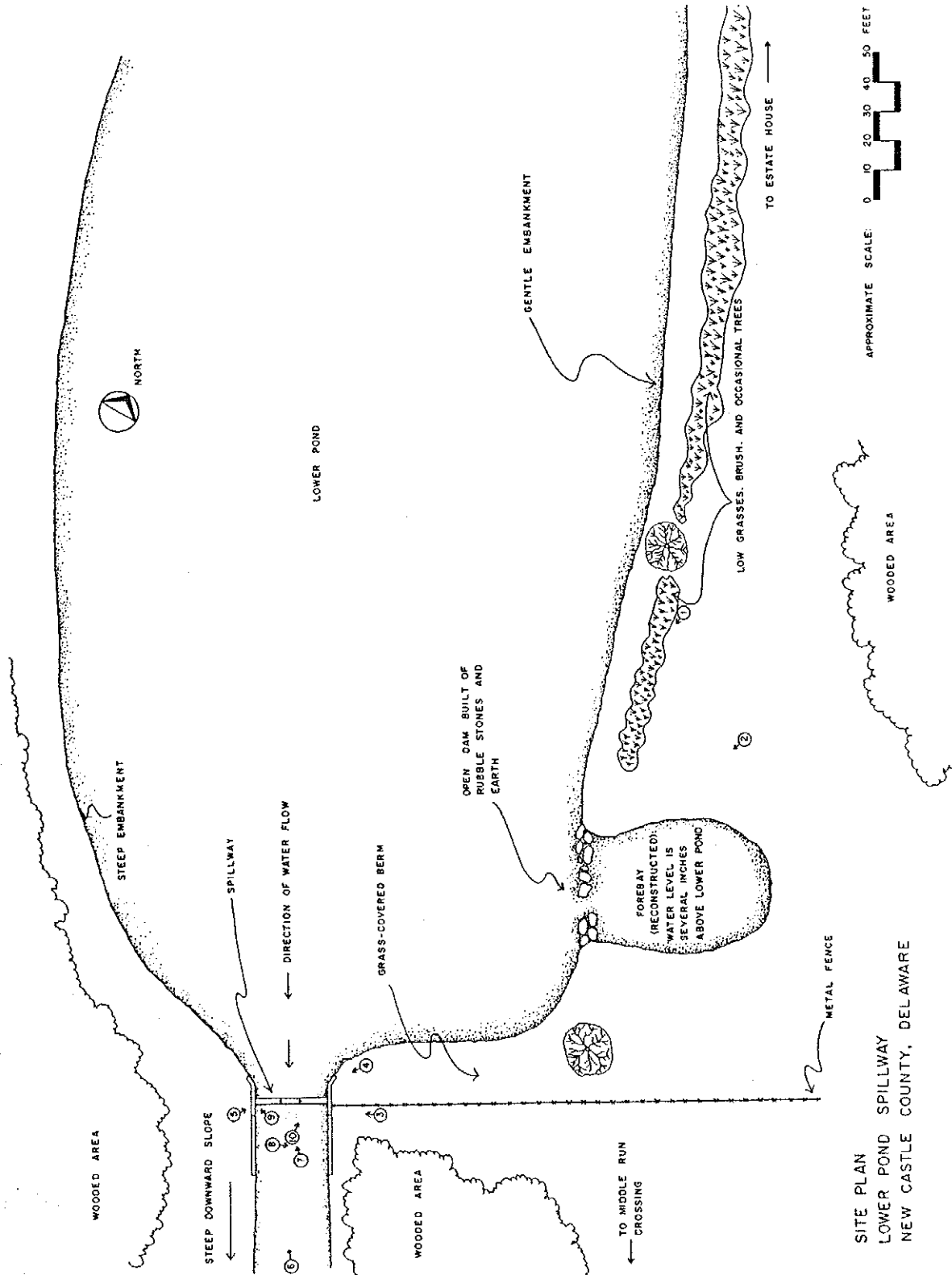
New Castle County, Delaware: New Castle County Department of Planning in conjunction with The Delaware State Greenspace Program. *Open Space and Historic Resources Preservation of the White Clay Valley*. New Castle County, Delaware: New Castle County Department of Planning in conjunction with The Delaware State Greenspace Program, January 1992.

United States Department of Agriculture, Natural Resources Conservation Service. Correspondence files: Hagley Museum and Library and Chesapeake Bay Girl Scout Council, Inc. Newark, Delaware, 1994.

U.S. Department of the Interior, Bureau of Reclamation. *Design of Small Dams: A Water Resources Technical Publication*. Denver, Colorado: U.S. Government Printing Office, 1987.

Likely sources not yet investigated:

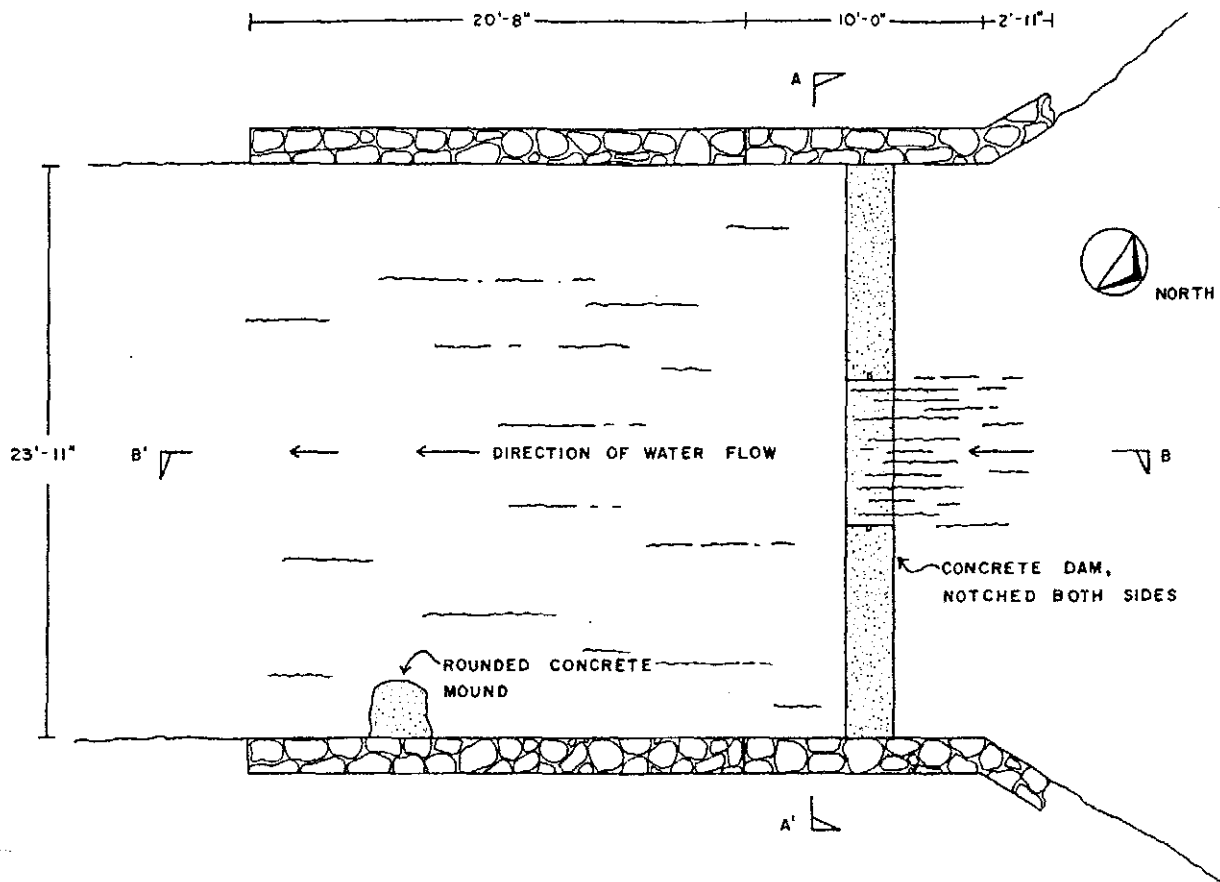
Attempts to contact former residents and owners of the property (Richard DuPont and William DuPont) were unsuccessful. It is believed that these contacts could supply more specific historic background regarding the changes to the property during the mid-twentieth century.



SITE PLAN  
 LOWER POND SPILLWAY  
 NEW CASTLE COUNTY, DELAWARE



WHITEMAN ESTATE, LOWER POND SPILLWAY  
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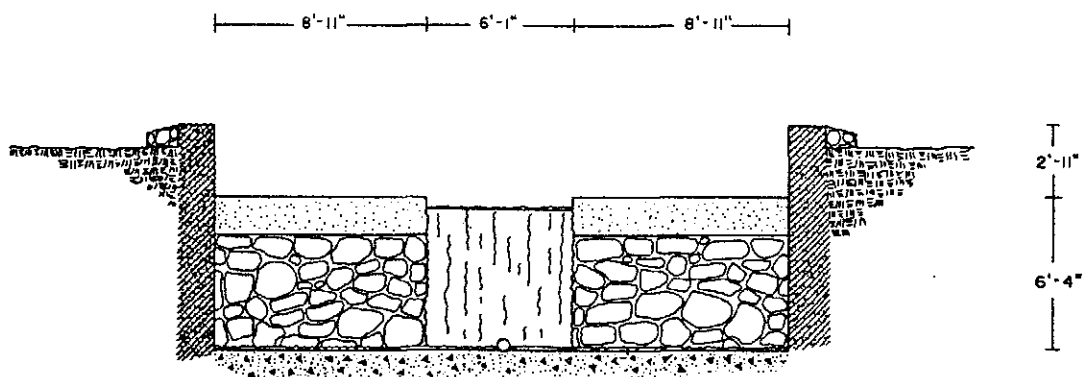


PLAN  
LOWER POND SPILLWAY  
NEW CASTLE COUNTY, DELAWARE

SCALE: 1/4" = 1'

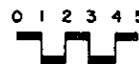
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WHITEMAN ESTATE, LOWER POND SPILLWAY  
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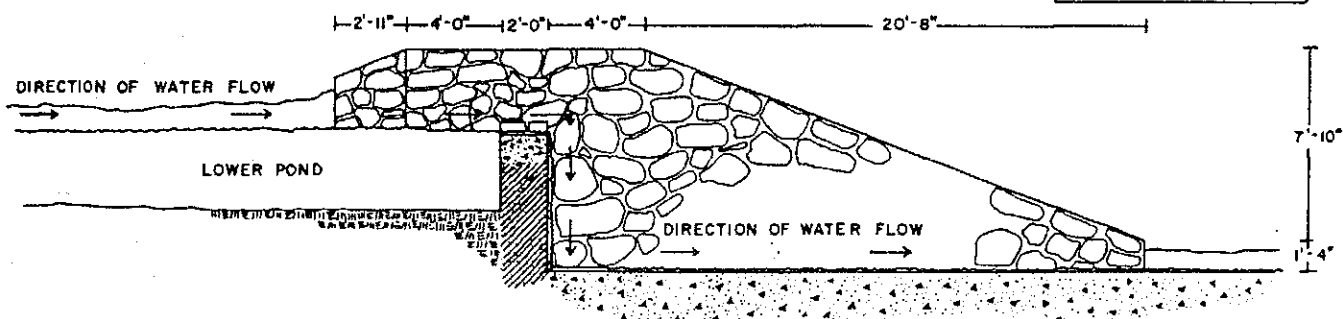


SECTION A-A'

SCALE: 1/4" = 1'

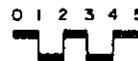


KEY	
	STONE
	EARTH
	CONCRETE



SECTION B-B'

SCALE: 1/4" = 1'



LOWER POND SPILLWAY  
 NEW CASTLE COUNTY, DELAWARE